

AMENDMENTS

Please amend the claims as provided below. A clean copy of the amended claims follows and a marked-up version showing each of the changes to the claims is attached at the end of this document.

In the Claims:

Please amend the claims to read as follows:

13. (Twice Amended) A method for carrying out Czochralski crystal growth comprising:
- (a) providing a crucible with a solid feed material therein, the solid feed material comprising each of the constituents of the crystal to be grown;
 - (b) heating an upper portion of the crucible with an upper heater to a temperature sufficient to melt the feed material in an upper portion of the crucible and separately heating a lower portion of the crucible with a lower heater to another temperature which is below the melt temperature of the feed material so that the feed material in the lower portion of the crucible remains solid, wherein an insulator is positioned between the upper heater and the lower heater;
 - (c) growing a crystal from the melt and drawing the growing crystal out of the melt; and
 - (d) advancing the crucible with respect to the heaters as the crystal is drawn from the melt to heat additional portions of solid feed material with the upper heater to melt the additional solid material to replace the crystal drawn from the melt.
29. (Twice Amended) A method of carrying out liquid encapsulated Czochralski crystal growth comprising:
- (a) providing a crucible with a solid feed material therein, the solid feed material comprising each of the constituents of the crystal to be grown;
 - (b) heating an upper portion of the crucible with an upper heater to a temperature sufficient to melt the feed material in an upper portion of the crucible and separately heating a lower portion of the crucible with a lower heater to another temperature which is below

the melt temperature of the feed material so that the feed material in the lower portion of the crucible remains solid, wherein an insulator is positioned between the upper heater and the lower heater;

(c) growing a crystal from the melt and drawing the growing crystal out of the melt while covering the melt with a liquid encapsulant material; and

(d) advancing the crucible with respect to the heaters as the crystal is drawn from the melt to heat additional portions of solid feed material with the upper heater to melt the additional solid material to replace the crystal drawn from the melt.

Please add the following new claim:

38. (New) A method for carrying out liquid encapsulated Czochralski crystal growth comprising:

(a) providing a crucible with a solid feed material therein, the solid feed material comprising each of the constituents of the crystal to be grown;

(b) heating the solid feed to a temperature sufficient to melt the solid feed material;

(c) cooling the melt under conditions which allow the melt to become undercooled and to solidify rapidly, minimizing macrosegregation in the resulting solid feed material;

(d) heating an upper portion of the crucible with an upper heater to a temperature sufficient to melt the feed material in an upper portion of the crucible and separately heating a lower portion of the crucible with a lower heater to another temperature which is below the melt temperature of the feed material so that the feed material in the lower portion of the crucible remains solid;

(e) growing a crystal from the melt and drawing the growing crystal out of the melt; and

(f) advancing the crucible with respect to the heaters as the crystal is drawn from the melt to heat additional portions of the solid feed material with the upper heater to melt the additional solid material to replace the crystal drawn from the melt.